# Ageing, resilience and depression: adding life to years as well as years to life

**A. Matthew Prina**[1]

[1] Health Service and Population Research Department, King's College London, Institute of Psychiatry, Psychology and Neuroscience, David Goldberg Centre, De Crespigny Park, London SE5 8AF, UK. (Email: matthew.prina@kcl.ac.uk);

Popular culture has long been fascinated with maintaining or restoring youth. Be it in the form of an elixir or a fountain, for centuries we have tried to find ways to extend our lives on earth. Thanks to improvements in sanitation, technology and medicine, in the last century life expectancy has extended dramatically across all continents. Although this should be celebrated as a remarkable success for humanity, if the added years of lifespan are lived in ill health, it could lead to major strain on already stretched public resources. And that is one of the reasons why the study of healthy ageing is becoming so prominent.

In this this issue of *Epidemiology and Psychological Sciences,* the two editorials give us a comprehensive and historical overview of the healthy ageing field, particularly focusing on the concept of 'resilience' and where mental health may fit within this field. You may notice that the two editorials use different terminology in their titles. One uses the term 'successful ageing' and the other one 'healthy ageing'. Addressing resilience considering both successful and healthy ageing may hold different implications for the study of resilience and mental health. Traditionally, successful ageing is a term that has been used primarily by scientific communities, often having a more empirical angle, whereas healthy ageing is the term of choice for policy makers, as demonstrated by the seminal report on healthy ageing launched by the World Health Organization in 2015(World Health Organization, 2015). There is also great impetus from the European Union to develop initiatives and funding around healthy ageing. This includes the European Innovation Partnership on Active and Healthy Ageing (European Commission, 2012) and many other funded projects, from the epidemiological data driven ATHLOS (ATHLOS, 2015) to technological developments seen in ACCOMPANY (ACCOMPANY, 2011).

One of the main limitations of this rapidly developing field is the heterogeneity of these definitions, and more importantly of their measurements. We attempted to quantify this issue in more details in a systematic review on definitions of successful ageing, where we identified 105 different operational definitions of this construct (Cosco *et al.*, 2014), often encompassing multiple domains (e.g. physical

functioning, engagement, personal resources, well-being, etc.). However different these operationalisations are, as Cosco points out in his editorial(Cosco *et al.*, 2017), they tend to share a common trait, which is the avoidance of negative aspects of ageing, while promoting positive aspects, such as active engagement.

Cosco's editorial gives us a historical overview of the healthy ageing field, and its rapid development from Cumming and Henry's disengagement theory in the late 50s (Cumming, 1968) to the Rowe and Kahn's model of modern days (Rowe and Kahn, 1997). Cosco and colleagues argue that measuring healthy ageing in epidemiological studies can be challenging, and that when this construct is dichotomised it often yields a very low prevalence. This is particularly problematic if healthy ageing is to be addressed by public health policies. Cosco and colleagues argue that resilience is a more useful indicator, as it allows people to experience some functional decline or adversity. This would not be the case when using the healthy ageing construct. Cosco then alludes to the reserve hypothesis and its role in healthy ageing. This is a popular concept that has primarily been used in cognitive sciences to explain how some people can create a buffer to protect them from cognitive decline by engaging in specific activities throughout life (Stern, 2012). Cosco argues that this concept also applies to healthy ageing, and that it is important to foster resilience in the face of adversity by building reserves in environmental, individual and social resources. The editorial concludes by highlighting the importance of wellbeing and resilience in the face of adversity and on how public health approaches and policies can be used to improve resilience in older age.

The second editorial from Huisman and colleagues (Huisman *et al.*, 2017) tackles a different angle, and focuses primarily on where depression fits within the successful ageing and resilience field, and what this means in practical terms for epidemiological research. The authors start by discussing that good mental health is instrumental to both successful ageing and resilience. Although depression has not traditionally been considered a component of successful ageing, some studies have showed a negative association between depression and successful ageing (Strawbridge *et al.*, 1996, Zaslavsky *et al.*, 2014) . In a systematic review that we recently carried out as part of the ATHLOS project (Kralj *et al.*, 2015) we found consistent evidence to suggest that being depressed is associated with unhealthier ageing. Specifically, we identified ten longitudinal studies that explored the relationship between depression and healthy ageing. Seven studies reported a clear association between lower depression symptomatology or not having depression and ageing more healthily and only three studies did not find such association.

Less research has been conducted on the association between depression and resilience in older age, and this is somewhat puzzling, given that as the Huisman and colleagues point out this "*could be an*

*obvious route toward identifying entry points for reducing the burden of morbidity*" in older age (Huisman *et al.*, 2017).

After a comprehensive historical insight into the history of resilience research, Huisman mentions the different type of approaches that have been used to operationalise resilience: metrics, data driven latent variable models and *a priori* criteria (Huisman *et al.*, 2017). In their thought-provoking editorial, Huisman and colleagues argue that the *a priori* approach is the best model to foster and improve research into resilience and depression. The main advantage of using an *a priori* approach is that it tailors the investigation towards the adversity of interest, whether it is depression, social circumstances, or other factors. The downside of using this type of approach though is that it requires an *a priori* definition of both the adversity and of the resilience outcome, which could be challenging. Even though this approach may somewhat limit generalisability, it could certainly improve our understanding of the relationship between resilience and mental health.

We are still far away from a standardised and agreed operationalisation of healthy ageing, successful ageing and resilience, and some could argue that this has hindered the development of this field. To a certain extent, it has affected the comparability of results, but it has also stimulated debate about the concepts, their meaning and their value. There are also more reasons to be optimistic, as healthy ageing seems to be on the agenda of many policymakers. The World Health Organization has recently launched a global strategy on healthy ageing which has two main goals: "*a) five years of evidence-based action to maximise functional ability that reaches every person; and b) by 2020, establish evidence and partnership necessary to support a Decade of Healthy Ageing from 2020 to 2030"* (World Health Organization, 2016). This strategy builds on the report on healthy ageing that was launched in 2015(World Health Organization, 2015), highlighting that even though there are many knowledge gaps in this field, there is sufficient evidence to start making a change now, particularly around developing age-friendly communities and aligning health systems to the needs of older populations. I think the time has come, not only to embrace these strategies, but also for more policy and global research funding to be made available. Could this be our fountain of youth?

Acknowledgements:

Matthew Prina is partly supported from the European Union's Horizon 2020 research and innovation programme under grant agreement No 635316.

## References


**ACCOMPANY** (2011). *ACCOMPANY (*http://rehabilitationrobotics.net/cms2/). Accessed 1 March 2017.

**ATHLOS** (2015). *Ageing Trajectories of Health: Longitudinal Opportunities and Synergies*. (http://athlosproject.eu/). Accessed 1 March 2017.

**Cosco, T. D., Howse, K. & Brayne, C.** (2017). Healthy ageing, resilience, and wellbeing. *Epidemiology & Psychiatric Sciences*.

**Cosco, T. D., Prina, A. M., Perales, J., Stephan, B. C. & Brayne, C.** (2014). Operational definitions of successful aging: a systematic review. *International Journal of Psychogeriatrics* **26**, 373-81.

**Cumming, E.** (1968). New thoughts on the theory of disengagement *International Journal of Psychiatry* **6**, 53-67.

**European Commission** (2012). *European Innovation Partnership on Active and Healthy Ageing*. (https://ec.europa.eu/eip/ageing/home_en). Accessed 1 March2017.

**Huisman, M., Klokgieters, S. S. & Beekman, A. T. F.** (2017). Successful ageing, depression, and resilience research; a call for a priori appoaches to investigations of resilience. *Epidemiology & Psychiatric Sciences*.

**Kralj, C., Prina, M. & Prince, M.** (2015). *Protocol for a systematic review of the determinants of healthy ageing*. (https://www.crd.york.ac.uk/prospero/display_record.asp?ID=CRD42016037935). Accessed 1 March 2017.

**Rowe, J. W. & Kahn, R. L.** (1997). Succesful aging. *Gerontologist* **37**, 433-440.

**Stern, Y.** (2012). Cognitive reserve in ageing and Alzheimer's disease. *Lancet Neurology* **11**, 1006-12.

**Strawbridge, W. J., Cohen, R. D., Shema, S. J. & Kaplan, G. A.** (1996). Successful aging: predictors and associated activities. *American Journal of Epidemiology* **144**, 135-41.

**World Health Organization** (2015). World report on ageing and health. Geneva.

**World Health Organization** (2016). *The Global strategy and action plan on ageing and health*. (http://who.int/ageing/global-strategy/en/). Accessed 1 March 2017.

**Zaslavsky, O., Cochrane, B. B., Woods, N. F., LaCroix, A. Z., Liu, J., Herting, J. R., Goveas, J. S., Johnson, K. C., Kuller, L. H., Martin, L. W., Michael, Y. L., Robinson, J. G., Stefanick, M. & Tinker, L. F.** (2014). Trajectories of positive aging: observations from the women's health initiative study. *International Psychogeriatrics* **26**, 1351-62.